

## BISC/ImmPort Data Release 8 studies

April 2014

Study updates: Planned Visits have been added to, or updated in, existing studies.

**Study Program:** Influenza Pathogenesis & Immunology Research Center (IPIRC)

**Title:** MicroRNA Regulation of Human Protease Genes

**Accession:** SDY261

**Subjects:** 1

**Study PI, contact:** Ralph Tripp, CEIRS, Emory University, Atlanta, GA

**Study Description:** Human protease genes required for influenza virus replication were determined and validated using RNA interference approaches. Genes validated as critical for influenza virus replication were ADAMTS7, CPE, DPP3, MST1, and PRSS12. Pathway analysis showed these genes were in global host cell pathways governing inflammation (NF-kB), cAMP/calcium signaling (CRE/CREB), and apoptosis.

**Publication:**

- MicroRNA regulation of human protease genes essential for influenza virus replication. *PLoS One*. 2012;7(5):e37169. doi: 10.1371/journal.pone.0037169 [[PubMed](#)]

### Assays in ImmPort:

Assay Type	Number of Exp. Samples
Array	4
Liquid chromatography	8
Protein quantification	28
Q-PCR	13
TCID50	23

**Clinical Assessments in ImmPort:** none

Notes: New study

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**Study Program:** Influenza Pathogenesis & Immunology Research Center (IPIRC)

**Title:** Strategies to alleviate original antigenic sin

**Accession:** SDY264

**Subjects:** 21

**Study PI, contact:** Joshy Jacob, CEIRS, Emory University, Atlanta, GA

**Study Description:** Explored strategies to overcome original antigenic sin responses in mice sequentially exposed to two closely related H1N1 influenza strains A/PR/8/34 and A/FM/1/47.

**Publication:**

- Strategies to alleviate original antigenic sin responses to influenza viruses. *Proceedings of the National Academy of Sciences of the United States of America*. 2012 Aug 21;109(34):13751-6. doi: 10.1073/pnas.0912458109 [[PubMed](#)]

### Assays in ImmPort:

Assay Type	Number of Exp. Samples
Plaque Assay	13
Virus Neutralization	59
ELISPOT	8

**Clinical Assessments in ImmPort:** none

Notes: New study

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**Study Program:** Immune Tolerance Network – Casale

**Title:** Efficacy and Safety Evaluation of Allergen Immunotherapy co-Administered with Omalizumab (an anti-IgE Monoclonal Antibody)

**Accession:** SDY1

**Subjects:** 159

**Study PI, contact:** Thomas Casale, Creighton University, Omaha, Nebraska

**Study Description:** A series of allergy shots may reduce symptoms of seasonal ragweed allergies. This study will determine whether taking a drug called omalizumab (also known as Xolair) before getting the allergy shots is more effective than allergy shots alone or other treatments, such as prescription antihistamines.

**Publication:**

- Omalizumab pretreatment decreases acute reactions after rush immunotherapy for ragweed-induced seasonal allergic rhinitis. *Journal of Allergy and Clinical Immunology* 2006 Jan;117(1):134-40. [[PubMed](#)]
- Combination treatment with omalizumab and rush immunotherapy for ragweed-induced allergic rhinitis: Inhibition of IgE-facilitated allergen binding. *Journal of Allergy and Clinical Immunology* 2007 Sep;120(3):688-95 [[PubMed](#)]

**Assays in ImmPort:**

Assay Type	Number of Exp. Samples
ELISA	4376
Flow Cytometry	14462

**Clinical Assessments in ImmPort:** Allergen history, food allergy, immunotherapy history, adverse events, concomitant medications, allergy skin reaction measurement, etc...

Notes: Updated planned visits for PV65-96

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**Study Program:** Influenza Pathogenesis & Immunology Research Center (IPIRC)

**Title:** Systems Biology of Seasonal Influenza Vaccination in Humans

**Accession:** SDY61

**Subjects:** 10

**Study PI, contact:** Bali Pulendran, Emory Vaccine Center, Atlanta, GA

**Study Description:** Using a systems biology approach to study innate and adaptive responses to influenza vaccination in humans during 3 consecutive influenza seasons

**Publication:**

- Systems biology of vaccination for seasonal influenza in humans. *Nature Immunology* 2011 Jul 10;12(8):786-95. doi: 10.1038/ni.2067. [[PubMed](#)]

**Assays in ImmPort:**

Assay Type	Number of Exp. Samples
Hemagglutination Inhibition	54
FCM	4

Array	27
Q-PCR	27

**Clinical Assessments in ImmPort:** none

Notes: Updated--Split study into 4 studies (SDY61, SDY269, SDY270, and SDY271) to reflect vaccine years

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**Study Program:** Influenza Pathogenesis & Immunology Research Center (IPIRC)

**Title:** Systems Biology of Seasonal Influenza Vaccination in Humans

**Accession:** SDY269

**Subjects:** 63

**Study PI, contact:** Bali Pulendran, Emory Vaccine Center, Atlanta, GA

**Study Description:** Using a systems biology approach to study innate and adaptive responses to influenza vaccination in humans during 3 consecutive influenza seasons

**Publication:**

- Systems biology of vaccination for seasonal influenza in humans. *Nature Immunology* 2011 Jul 10;12(8):786-95. doi: 10.1038/ni.2067. [[PubMed](#)]

**Assays in ImmPort:**

Assay Type	Number of Exp. Samples
Hemagglutination Inhibition	336
FCM	59
Array	263
Q-PCR	75
ELISPOT	336
Luminex_xMAP	168

**Clinical Assessments in ImmPort:** none

Notes: Updated--Split study across 4 studies (SDY61, SDY269, SDY270, and SDY271) to reflect vaccine years

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**Study Program:** Influenza Pathogenesis & Immunology Research Center (IPIRC)

**Title:** Systems Biology of Seasonal Influenza Vaccination in Humans

**Accession:** SDY270

**Subjects:** 30

**Study PI, contact:** Bali Pulendran, Emory Vaccine Center, Atlanta, GA

**Study Description:** Using a systems biology approach to study innate and adaptive responses to influenza vaccination in humans during 3 consecutive influenza seasons

**Publication:**

- Systems biology of vaccination for seasonal influenza in humans. *Nature Immunology* 2011 Jul 10;12(8):786-95. doi: 10.1038/ni.2067. [[PubMed](#)]

**Assays in ImmPort:**

Assay Type	Number of Exp. Samples
Q-PCR	90

**Clinical Assessments in ImmPort:** none

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Notes: Updated--Split study across 4 studies (SDY61, SDY269, SDY270, and SDY271) to reflect vaccine years

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**Study Program:** Influenza Pathogenesis & Immunology Research Center (IPIRC)

**Title:** Systems Biology of Seasonal Influenza Vaccination in Humans

**Accession:** SDY271

**Subjects:** 36

**Study PI, contact:** Bali Pulendran, Emory Vaccine Center, Atlanta, GA

**Study Description:** Using a systems biology approach to study innate and adaptive responses to influenza vaccination in humans during 3 consecutive influenza seasons

**Publication:**

- Systems biology of vaccination for seasonal influenza in humans. *Nature Immunology* 2011 Jul 10;12(8):786-95. doi: 10.1038/ni.2067. [[PubMed](#)]

**Assays in ImmPort:**

Assay Type	Number of Exp. Samples
Q-PCR	4
ELISA	100
Immunoblot	26

**Clinical Assessments in ImmPort:** none

Notes: Split study across 4 studies (SDY61, SDY269, SDY270, and SDY271) to reflect vaccine years

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**Study Program:** NIAID Vaccine Research Center (VRC)

**Title:** VRC304 - A Phase I Study of the Safety and Immunogenicity of a Recombinant DNA Plasmid Vaccine (VRC-AVIDNA036-00-VP) Encoding for the Influenza Virus H5 Hemagglutinin Protein in Healthy Adults

**Accession:** SDY167

**Subjects:** 45

**Study PI, contact:** Julie Ledgerwood,

**Study Description:** VRC304 - A Phase I, double-blind, placebo-controlled, randomized, dose escalation study to evaluate safety, tolerability, and immunogenicity of a recombinant DNA vaccine against the influenza virus hemagglutinin H5.

**Publication(s):**

- Influenza virus h5 DNA vaccination is immunogenic by intramuscular and intradermal routes in humans. *Clinical Vaccine Immunology* 12 Nov;19(11):1792-7. doi: 10.1128/CVI.05663-11 [[PubMed](#)]

**Assays in ImmPort:**

Assay Type	Number of Exp. Samples
ELISA	430
ELISPOT	300
Flow Cytometry	874
Hemagglutination Inhibition	44
Virus Neutralization	88

**Clinical Assessments in ImmPort:** none

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Notes: Flow Cytometry experiment controls assigned experiment sample accession numbers and linked to treatment records.

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**Study Program:** Systems Analysis Vaccine Responses in Healthy and Hyporesponsive Humans

**Title:** Systems scale interactive exploration reveals quantitative and qualitative differences in response to influenza and pneumococcal vaccines

**Accession:** SDY180

**Subjects:** 46

**Study PI, contact:** A. Karolina Palucka, Baylor Institute for Immunology Research, Dallas, TX

**Study Description:** Systems approach to study immune response to seasonal influenza and 23-valent pneumococcal vaccination in healthy adults.

**Publication(s):**

- Systems scale interactive exploration reveals quantitative and qualitative differences in response to influenza and pneumococcal vaccines. *Immunity* 2013 Apr 18;38(4):831-44.

[\[PubMed\]](#)

**Assays in ImmPort:**

Assay Type	Number of Exp. Samples
Array	542
Flow Cytometry	2208
Luminex xMAP	182
Virus Neutralization	89

**Clinical Assessments in ImmPort:** none

Notes: Virus neutralization experiment updated to HAI.

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**Study Program:** Vaccination and Infection: Indicators of Immunologic Health and Responsiveness

**Title:** Apoptosis and other immune biomarkers predict influenza vaccine responsiveness

**Accession:** SDY212

**Subjects:** 91

**Study PI, contact:** Mark M. Davis, Stanford University School of Medicine, Stanford, CA

**Study Description:** In an effort to identify benchmarks of immunological health, influenza vaccination was used in 30 young (20 to 30 years) and 59 older subjects (60 to 89 years) as models for strong and weak immune responses, respectively.

**Publication:**

- Apoptosis and other immune biomarkers predict influenza vaccine responsiveness. *Molecular Systems Biology* 2013 Apr 16;9:659. doi: 10.1038/msb.2013.15. [\[PubMed\]](#)

**Assays in ImmPort:**

Assay Type	Number of Exp. Samples
Hemagglutination Inhibition	534
DNA Microarray	91
Peptide Microarray	91
PhosphoFlow	63
Flow Cytometry	540
MBAA, Luminex	91

**Clinical Assessments in ImmPort:** none

Notes: Updated HAI to include Visit 3

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**Study Program:** University of Rochester Center for Biodefense Immune Modeling

**Title:** Immune Response to Seasonal Influenza Vaccination in Humans

**Accession:** SDY224

**Subjects:** 14

**Study PI, contact:** Martin Zand, Hulin Wu, University of Rochester Medical Center, Rochester, NY

**Study Description:** Systems biology approach to compare differences in immune response to vaccination

**Publication:**

- Ki-67 expression reveals strong, transient influenza specific CD4 T cell responses after adult vaccination. *Vaccine* 2012 Jun 29;30(31):4581-4. doi: 10.1016/j.vaccine.2012.04.059. [\[PubMed\]](#)
- High-resolution temporal response patterns to influenza vaccine reveal a distinct human plasma cell gene signature. *Scientific Reports* 2013;3:2327. doi: 10.1038/srep02327. [\[PubMed\]](#)

**Assays in ImmPort:**

Assay Type	Number of Exp. Samples
ELISA	423
ELISPOT	120
Flow Cytometry	560
Hemagglutination Inhibition	543
Q-PCR	1548
RNA sequencing	110

**Clinical Assessments in ImmPort:** none

Notes: Updates made to RNA-seq summary results

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**Study Program:** University of Rochester Center for Biodefense Immune Modeling

**Title:** Simulation and Prediction of the Adaptive Immune Response and Quantification of Early and Adaptive Immune Response Kinetics to Influenza A Virus Infection

**Accession:** SDY241

**Subjects:** 495

**Study PI, contact:** David Topham, Hulin Wu, University of Rochester, Rochester, NY

**Study Description:** Modeling approaches were combined with experimental data to investigate innate and adaptive immune responses to IAV infection.

**Publication(s):**

- Simulation and prediction of the adaptive immune response to influenza A virus infection. *Journal of Virology* 2009 Jul;83(14):7151-65. doi: 10.1128/JVI.00098-09 [\[PubMed\]](#)
- Quantifying the early immune response and adaptive immune response kinetics in mice infected with influenza A virus. *Journal of Virology* 2010 Jul;84(13):6687-98. doi: 10.1128/JVI.00266-10. [\[PubMed\]](#)
- Modeling of influenza-specific CD8+ T cells during the primary response indicates that the spleen is a major source of effectors. *Journal of Immunology* 2011 Nov 1;187(9):4474-82. doi: 10.4049/jimmunol.1101443 [\[PubMed\]](#)

**Assays in ImmPort:**

Assay Type	Number of Exp. Samples
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ELISA	1866
ELISPOT	485
Flow cytometry	5090
Array	71
PCR	396

**Clinical Assessments in ImmPort:** none

Notes: Updated--added Array and PCR virus quantification experiments

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**Study Program:** Modeling Immunity to Enteric Pathogens (MIEP)

**Title:** SWHP03 A novel pig model of Helicobacter pylori infection demonstrating Th1 and cytotoxic T cell responses

**Accession:** SDY262

**Subjects:** 35

**Study PI, contact:** Josep Bassaganya-Riera, Virginia Bioinformatics Institute, Blacksburg, VA

**Study Description:** This time-course study assesses systemic and local immune responses in pigs challenged with a European and African strain of Helicobacter pylori. Immunophenotype and gene expression was assessed in peripheral blood mononuclear cells every week over a course of 2 months.

**Publication:**

- Helicobacter pylori infection in a pig model is dominated by Th1 and cytotoxic CD8+ T cell responses *Infectious Immunity* 2013 Oct;81(10):3803-13. doi: 10.1128/IAI.00660-13 [[PubMed](#)]

**Assays in ImmPort:**

Assay Type	Number of Exp. Samples
Bacterial re-isolation	168
ELISPOT	140
Flow Cytometry	2785
Q-PCR	234
Microscopy	156

**Clinical Assessments in ImmPort:** none

Notes: Updates made to Re-isolation experiment

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